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10/796,938	03/09/2004	Ron Naftali	6317P024	4473
7590	08/06/2009		EXAMINER	
Tarek N. Fahmi Applied Materials, Inc. Patent Counsel Santa Clara, CA 95052			LIU, MICHAEL	
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/796,938

Filing Date: March 09, 2004

Appellant(s): NAFTALI, RON

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Tarek N. Fahmi  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 6/11/09 appealing from the Office action mailed 11/18/08.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

### **(9) Grounds of Rejection**

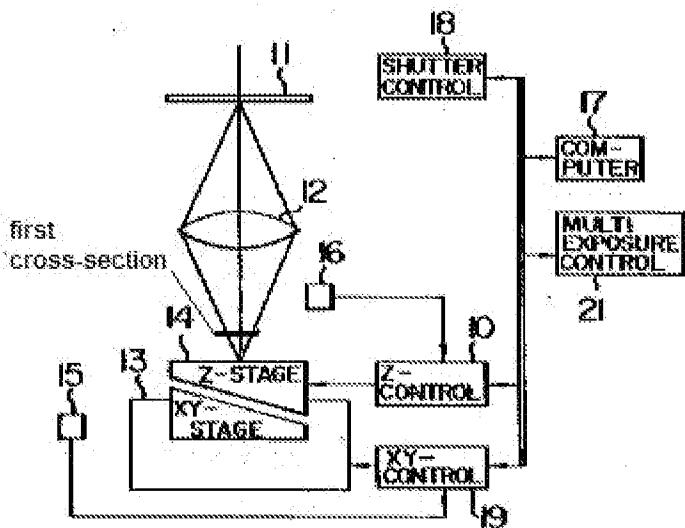
The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al (4,904,569).

*Re claims 5 and 1:* Fukuda discloses a system [Fig 3] for recording a pattern 11, comprising:

a controller 17, for determining an illumination scheme [via multi-image using exposure control system 21] in response to the pattern; and optics [shutter controlled by shutter control system 18], coupled to the controller, for directing, in response to the determination, at least one beam of radiation [C11L62-63: excimer laser] having a first cross-section [Drawing 1] towards a reversible transmission film 44 so as to allow a portion of said beam to propagate towards a radiation sensitive layer 42, wherein the portion has a second cross-section [Fig 8d: grooves between resist pattern 46] that is smaller than the first cross-section.

FIG. 3



Drawing 1 First cross-section labeled.

Fukuda does not disclose expressly a saturable absorber.

However, Par 003 of the instant disclosure states, "A material can be regarded as a saturable absorber if its light absorption decreases with increasing light intensity." Similarly, Fukuda teaches, in C13L43-50, "Further, the transparency of the reversible transmission film depends upon the quantity of exposure light. That is, when a large quantity of exposure light is incident on the reversible transmission film, the transparency thereof is high. While, when a small quantity of exposure light is incident on the reversible transmission film, the film is not so transparent." Based on these descriptions, a reversible transmission film acts as a saturable absorber, only allowing light transmittance under a large quantity of exposure light, or increasing light intensity.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to recognize that the reversible transmission film 44 of Fukuda has the same properties as a saturable absorber and could be used as such, for the purpose of forming sharp patterns to achieve devices with better performance.

*Re claims 6 and 2:* Fukuda discloses wherein the optics are adapted to focus the at least one beam of radiation onto an intermediate layer 43.

*Re claims 7 and 3:* Fukuda discloses wherein the second cross-section [see Fig 8d] is about half of the first cross-section [Drawing 1].

*Re claims 8 and 4:* Fukuda discloses wherein the controller is adapted to control an intensity of the beam of radiation to achieve a certain second cross-section. [C17L6-12: "Further, it is possible to cause the bleaching characteristic of the reversible transmission film to match with the sensitivity of the photoresist layer by appropriately selecting the exposure light quantity and the number of exposure operations, and hence the reversible transmission film can act as an efficient contrast enhancement layer."]

## **(10) Response to Argument**

### **1. The present claims are patentable over Fukuda.**

Appellant argues on page 5, lines 7-9, "Furthermore, Fukuda, taken as a whole, fails to mention or suggest a saturable absorber, the use of which, has the net effect of reducing the size of a beam that passes through to a radiation sensitive layer."

Moreover, Appellant asserts on page 5, lines 1-4, "Thus, the reversible transmission layer of Fukuda is limited to enhancing the contrast of a pattern printed on a photoresist layer and does not affect the cross section of a beam. In contrast, the saturable

absorber of the present claims acts to reduce the cross-section of a beam propagating toward a radiation sensitive layer.” The examiner respectfully disagrees with these assertions.

In response to Appellant's argument that the references fail to show certain features of Appellant's invention, it is noted that the feature upon which Appellant relies, namely the saturable absorber acts to reduce the cross-section of the beam, is not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Specifically, claim 5 recites, “Optics, coupled to the controller, for directing, in response to the determination, at least one beam of radiation having a first cross-section towards a saturable absorber so as to allow a portion of said beam to propagate towards a radiation sensitive layer; wherein the portion has a second cross-section that is smaller than the first cross-section.” Independent claim 1 recites, using respective language, similar features as claim 5. The claim language contains a first cross-section beam directed towards the saturable absorber and then a smaller second cross-section beam beyond the saturable absorber. The claim language does not tie the beam at the second cross-section being smaller as a result of the saturable absorber. In fact, there is no correlation between the saturable absorber and the cross-section size, much less the saturable absorber reducing the cross-section size. Therefore, as currently claimed, the saturable absorber does not reduce the cross-section of the beam.

As a result, the teachings of Fukuda still read on the claim language. Fukuda discloses at least one beam of radiation [column 11, lines 62-63: excimer laser] having a first cross-section [Drawing 1] towards a reversible transmission film 44 so as to allow a portion of said beam to propagate towards a radiation sensitive layer 42, wherein the portion has a second cross-section [Fig 8d: grooves between resist pattern 46] that is smaller than the first cross-section.

Fukuda does not disclose expressly a saturable absorber.

However, Par 003 of the instant disclosure states, “A material can be regarded as a saturable absorber if its light absorption decreases with increasing light intensity.” Similarly, Fukuda teaches, in column 13, lines 43-50, “Further, the transparency of the reversible transmission film depends upon the quantity of exposure light. That is, when a large quantity of exposure light is incident on the reversible transmission film, the transparency thereof is high. While, when a small quantity of exposure light is incident on the reversible transmission film, the film is not so transparent.” Based on these descriptions, a reversible transmission film acts as a saturable absorber, only allowing light transmittance under a large quantity of exposure light, or increasing light intensity.

At the time the invention was made, it would have been obvious to one of ordinary skill in the art to recognize that the reversible transmission film 44 of Fukuda has the same properties as a saturable absorber and could be used as such, for the purpose of forming sharp patterns to achieve devices with better performance.

Thus, Appellant’s arguments on these points are not persuasive.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Michael Liu

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